# utils/simulator.py

import subprocess

import os

import logging

from .helpers import run\_subprocess

logger = logging.getLogger(\_\_name\_\_)

def run\_simulation(qemu\_machine, qemu\_options, binary\_path, log\_path):

logger.info("Running simulation with QEMU...")

if not os.path.isfile(binary\_path):

logger.error(f"Binary not found at {binary\_path}")

raise FileNotFoundError(f"Binary not found at {binary\_path}")

qemu\_command = [

os.path.join(os.path.expanduser(qemu\_options[2]), 'qemu-system-riscv32'), # Adjusted for custom QEMU install

'-machine', qemu\_machine

] + qemu\_options + [

'-kernel', binary\_path

]

logger.debug(f"QEMU command: {' '.join(qemu\_command)}")

try:

with open(log\_path, 'w') as log\_file:

subprocess.run(qemu\_command, stdout=log\_file, stderr=log\_file, check=True)

logger.info(f"Simulation completed. Log saved to {log\_path}")

except subprocess.CalledProcessError as e:

logger.error(f"QEMU simulation failed. Check log at {log\_path}")

raise